

REMARKS

The brief descriptions of Figures 4, 5, and 6 have been amended so that the descriptions reference the correct figures.

Applicant's remarks below are preceded by quotations of Examiner's remarks in small type.

1. **The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.**

The title has been amended.

3. **The drawings are objected to under 37 CFR 1.83(a). The drawings must show every features of the invention specified in the claims. Therefore, the features of the "the conductive substrate comprises etches that are filled with a *resistive composition*" in claim 7 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.**

5. **Claim 7 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification, as originally filed, does not disclose the conductive substrate comprising *etches that are filled with a resistive composition* as recited in claim 7.**

7. **Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

In claim 7, the recitation of "the conductive substrate comprising *etches that are filled with a resistive composition*" is unclear as to whether "a resistive composition" and "a polymer composition" (recited in claim 6) imply the same composition or different. Note that applicant's figures 4A-4D show the polymer composition 150 being the only material formed the network and filled the half etches 710.

Claim 7 has been canceled. However, the applicants do not accede to the Examiner's statements.

9. Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Glenn (6,150,193).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 1-4, Glenn (see specifically figures 2-4-6) a device comprising: a lead frame having conductive leads 22 and an insulative composition, which is a portion of insulative material 37, interposed between the leads 22; a die 30 having a lower die surface that is connected by solder bumps to the leads, and is spaced by a gap from a first region of the lead frame; and a polymer composition 42 that forms a continuous network that layer extending above the lower die surface to cover the upper die surface and regions of the lead frame surface that are outside the first region and not occupied by any component. Glenn further discloses an insulative layer 37 partially filling the gap and covering the first region.

Claim 1 has been amended. Claim 1 is directed to a device that includes: a lead frame having conductive leads and an insulative composition interposed between the leads; a die having a lower die surface that is connected by contacts to the lead frame, and is spaced by a gap from a first region of the lead frame; and a polymer composition that forms a continuous network that forms a layer that extends at least above the lower die surface, at least partially fills the gap, and covers regions of the lead frame surface that are outside the first region and are not occupied by any component.

Figure 2 of Glenn describes an IC chip 30 on a substrate 12. The region between the chip and chip is filled with an underfill material 37 (see also column 5, line 67 - column 6, line 3 of Glenn). The IC chip 30 is covered by a layer of encapsulant 42 (see also column 6, lines 24-27).

Glenn does not describe a continuous network that extends at least above the lower die surface and at least partially fills the gap between the lower die surface and the lead frame. Rather, Glenn describes an underfill material 37 that fills a gap between the IC chip 30 and the substrate 12 and a separate encapsulant 42 which extends above the lower die surface. Thus, Glenn cannot anticipate claim 1 as amended and claims 2 to 5 which depend from claim 1.

12. Claims 6-9, insofar as in compliance with 35 USC § 112, are rejected under 35 U.S.C. 103(a) as being unpatentable over Azuma (U.S. Patent Application Publication No. 2001/0009301) in view of Wang et al. (6,000,924).

Claims 7-8 are canceled without prejudice to subsequent prosecution. The applicants do not accede to the Examiner's statements and reserve the right to argue the Examiner's rejection.

Claim 6 has been amended. Claim 6 is supported by the parent application, U.S. Serial No. 09//741,535, filed December 19, 2000, to which this application claims priority. Azuma (U.S. Patent Application Publication No. 2001/0009301) has a United States filing date of January 23, 2001. Because the filing date of the parent of this application precedes the United States filing date of Azuma, Applicant submits that Azuma is not available as a prior art reference under 35 U.S.C. § 103(a).

13. Claims 10-12 are rejected under 35 U. S. C. 103(a) as being unpatentable over Juskey et al (6,356,453) in view of Wang et al. (6,000,924).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 10-12, Juskey et al (see specifically figures 5-9) a device comprising: a lead frame having plurality of leads 514-515; a die 522 having a lower surface that is connected by contacts (e.g., solder bumps 548) to, and is spaced by a gap from a first region of the leads; a peripheral component 532 also connected to the leads at a location other than in the first region; an insulative layer partially filling the gap and covering the first region; a sealing composition extending in a direction normal to the lead frame at least above the lower die surface and extending along a surface of the lead frame from the die to the peripheral component 532. Juskey et al do not specifically teach the sealing composition being a polymer.

Polymer, however, is conventional in semiconductor art for being an encapsulant or a sealing resin as disclosed by Wang et al (Col. 5, lines 50+). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the sealing resin made of a polymer composition to Juskey et al's device package, since polymer is a well-known material in art for sealing a semiconductor device on a substrate, as taught by Wang et al.

Claim 10 has been amended. Claim 10 is drawn to a device that includes a lead frame, a die and a polymer composition that extends in a direction normal to the lead frame at least above the lower die surface, fills the gap between the lower die surface and a first region of the lead frame, and extends along a surface of the lead frame from the die to a peripheral component.

FIG. 5 of Juskey, for example, describes a chip component 522 which is underfilled by the underfill material 550. The underfill material 550 does not extend along the surface of the substrate 520 (or the substrate coat 520) to a peripheral component 532. The encapsulant layer 536, on the other hand, does not fill the gap between the chip component 522 and the substrate coat 520. Thus, Juskey does not disclose nor suggest a device in which a polymer composition fills the gap between a lower die surface and a region of the lead frame and extends along the surface of the lead frame from the die to a peripheral component. Likewise, Wang does not

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disclose nor suggest such a device. Thus, Juskey and Wang cannot make the device of claim 10 obvious.

Applicant asks that all claims be allowed. Enclosed is a \$930 check for the Petition for Extension of Time fee. Please apply any other charges or credits to Deposit Account No. 06-1050, referencing attorney docket number 10559-445001.

Respectfully submitted,

Date: _____

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